

***Interactive comment on “Alpine permafrost thawing during the Medieval Warm Period identified from cryogenic cave carbonates” by M. Luetscher et al.***

**Anonymous Referee #2**

Received and published: 11 March 2013

Dear Editor,

thank you for giving me the opportunity to review this interesting paper. I consider the subject is appropriate to TC. References are satisfactory, but I would like to see credits given to some of the papers I suggested in my review. After the authors are taking care of a number of errors throughout the manuscript and answer/follow up some of my comments I think the paper can be accepted in TC.

Although I regard the CCCc as a good working hypothesis for freezing/thawing cycles, the authors should be more circumspect in stating clearly that it is site-specific and valid primarily for that region and not generalized to mountain permafrost during the

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Late Holocene. I make this observation because I am concerned that the data set is rather small and ultimately, the morphology and location of the cave differs significantly from many other caves in the Alps, Carpathians, and Pyrenees that host seasonal and perennial ice block and associated CCC (fine or coarse). Therefore, at most, the site described is only a dot on the long mountain range crossing Europe. More sites need to be investigated before allowing to formulate insightful general conclusions.

A particular attention should be dedicated to the description of the process that precipitates CCCc. It is not clear for instance when and why the ponds forms on top of the ice filling or breakdown blocks and when the deposition of calcite is initiated (before or precisely after the pond is covered by a thin ice layer? Is there a temperature threshold involved?). I also agree with one of the points made by Dr. Zak, who suggested the authors to make use of other papers by Badino, Lismonde, etc. to better cover the heat fluxes in a cave environment.

Additional comments, suggestions, and notes were made in the manuscript attached to this message.

Please also note the supplement to this comment:

<http://www.the-cryosphere-discuss.net/7/C145/2013/tcd-7-C145-2013-supplement.pdf>

Interactive comment on The Cryosphere Discuss., 7, 419, 2013.

TCD

7, C145–C146, 2013

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